

COMPRESSOR DEFINITION

Designation	EM I40HNP
Nominal Voltage/Frequency	100 V 50-60 Hz
Engineering Number	513302908

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	100 / 50-60	[V / Hz]	
4 Application type	Low Back Pressure		
4.1 Evaporating temperature range	-35°C to -10°C	(-31°F to 14°F)	
5 Motor type	RSIR		
6 Starting torque	LST - Low Starting Torque		
7 Expansion device	Capillary tube		
8 Compressor cooling		Operating voltage range	
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	Static	85 to 110 V	85 to 110 V
8.2 LBP (43°C Ambient temperature)	Static	85 to 110 V	85 to 110 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing pressures/temperature			
9.1 Operating (gauge)	16.2	[kgf/cm ²] (230 psig)	/ °C - °F
9.2 Peak (gauge)	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/8	[hp]
2 Displacement	3.77	[cm ³] (0.230 cu.in)
2.1 Bore [mm]	19.000	
2.2 Stroke [mm]	13.300	
3 Lubricant charge	160	[ml] (5.41 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	7.05	[kg] (15.54 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm ²] (2.84 to 4.27 psig)

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	100 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	490C814R7/7M4R7MC1/8EA14C1/8EA4B1	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	4TM319RFBYY-53	
6 Start winding resistance	10.60	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	4.65	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	10.50/10.00	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	2.20/1.20	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification		

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @100V50Hz			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
320	81	94	98	1.80	1.82	3.27	0.82	0.96

TEST CONDITIONS: @100V60Hz			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
380	96	111	104	1.60	2.16	3.65	0.92	1.07

E - PERFORMANCE - CURVES

TEST CONDITIONS: @100V50Hz			ASHRAE32 Static		(Condensing temperature 45°C (+113°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	160	40	47	75	1.75	0.90	2.14	0.54	0.63
-30 (-22)	236	59	69	85	1.77	1.34	2.79	0.70	0.82
-25 (-13)	328	83	96	94	1.79	1.86	3.50	0.88	1.03
-20 (- 4)	440	111	129	103	1.82	2.50	4.28	1.08	1.25
-15 (+ 5)	575	145	168	112	1.85	3.28	5.12	1.29	1.50
-10 (+14)	736	186	216	122	1.89	4.22	6.03	1.52	1.77

TEST CONDITIONS: @100V50Hz			ASHRAE32 Static		(Condensing temperature 55°C (+131°F))				
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	123	31	36	72	1.74	0.69	1.69	0.43	0.50
-30 (-22)	197	50	58	83	1.78	1.12	2.37	0.60	0.69
-25 (-13)	287	72	84	94	1.81	1.63	3.07	0.77	0.90
-20 (- 4)	396	100	116	105	1.85	2.25	3.80	0.96	1.11
-15 (+ 5)	528	133	155	116	1.90	3.01	4.56	1.15	1.34
-10 (+14)	686	173	201	128	1.96	3.93	5.35	1.35	1.57

E - PERFORMANCE - CURVES

TEST CONDITIONS: @100V50Hz		ASHRAE32 Static			(Condensing temperature 65°C (+149°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	57	14	17	64	1.70	0.32	0.91	0.23	0.27	
-30 (-22)	134	34	39	77	1.75	0.76	1.71	0.43	0.50	
-25 (-13)	225	57	66	89	1.79	1.28	2.50	0.63	0.73	
-20 (- 4)	335	84	98	102	1.84	1.91	3.29	0.83	0.96	
-15 (+ 5)	467	118	137	115	1.90	2.67	4.06	1.02	1.19	
-10 (+14)	624	157	183	129	1.97	3.58	4.83	1.22	1.41	

TEST CONDITIONS: @100V60Hz		ASHRAE32 Static			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	196	49	58	75	1.40	1.11	2.61	0.66	0.76	
-30 (-22)	289	73	85	86	1.44	1.64	3.38	0.85	0.99	
-25 (-13)	398	100	117	98	1.50	2.26	4.07	1.03	1.19	
-20 (- 4)	528	133	155	111	1.59	3.01	4.75	1.20	1.39	
-15 (+ 5)	686	173	201	125	1.69	3.91	5.48	1.38	1.61	
-10 (+14)	875	220	256	138	1.82	5.01	6.32	1.59	1.85	

TEST CONDITIONS: @100V60Hz		ASHRAE32 Static			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	142	36	42	73	1.40	0.80	1.95	0.49	0.57	
-30 (-22)	241	61	71	85	1.46	1.37	2.86	0.72	0.84	
-25 (-13)	355	89	104	99	1.54	2.01	3.61	0.91	1.06	
-20 (- 4)	487	123	143	114	1.64	2.77	4.27	1.08	1.25	
-15 (+ 5)	644	162	189	131	1.76	3.67	4.91	1.24	1.44	
-10 (+14)	829	209	243	148	1.90	4.75	5.59	1.41	1.64	

TEST CONDITIONS: @100V60Hz		ASHRAE32 Static			(Condensing temperature 65°C (+149°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-35 (-31)	71	18	21	60	1.35	0.40	1.19	0.30	0.35	
-30 (-22)	174	44	51	74	1.42	0.98	2.29	0.58	0.67	
-25 (-13)	288	72	84	90	1.50	1.63	3.16	0.80	0.93	
-20 (- 4)	418	105	123	109	1.62	2.38	3.86	0.97	1.13	
-15 (+ 5)	571	144	167	128	1.74	3.26	4.47	1.13	1.31	
-10 (+14)	750	189	220	149	1.89	4.29	5.04	1.27	1.48	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EG/F/AMEM version 2		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted parallel to Base Plate		
3.2 DISCHARGE	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted parallel to Base Plate		
3.3 PROCESS	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted parallel to Base Plate		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		